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Final Report--Objective E, Task 4
Covering the Period 1 October 1987 to 30 September 1988

December 1988

FORCED-CHOICE REMOTE VIEWING (U)

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SRI Project 1291

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I INTRODUCTION (U)

(U) Forced-choice psychoenergetic experiments have been part of the research paradigm since the inception of laboratory studies during the 1930s. In these types of experiments, it is generally assumed that the subject is completely knowledgeable about the target possibilities. For example, it is assumed in Zener card studies that the target possibilities of star, wavy lines, square, circle, and cross are known to all participants in the experiment.

(U) In a typical, single-trial protocol, a target is randomly selected, and the subject is usually required to respond with one of the items from the set of target possibilities. A run consists of many such trials, and a series usually contains many runs. For example, during the period between 1934 and 1939, over one million separate trials were collected. While the p-values for these studies indicated highly significant departures from mean chance expectation (i.e. $\sim 10^{-9}$), the effect sizes were quite small (i.e., mean $r \sim 0.029$).*

(U) A persistent problem exists within the data. One of the strongest statistical effects that has been observed, and has been part of the research lore since the 1930s, is the so-called decline effect. The decline effect is defined as a strong trend of decreasing scores over time. Unfortunately, the systematics of the decline effect have been difficult to ascertain. For example, in independent experiments, decline effects have been observed to be significant within a run, within a series, and even within a collection of studies. The effect appears to be significant across subjects as well.

(U) The decline effect within a run for a given subject is relatively easy to understand, given that the effect is not simple convergence to the mean. Scoring in a repetitive psi task (and probably in any repetitive task) may suffer from subject boredom. When trial-by-trial feedback is used, a potentially more serious problem arises. Since subjects remember the result from a previous trial, it is difficult for them to discriminate between a putative psi signal and that of vivid memory.

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* (U) Rhine, J. B., "Position Effects in Psi Test Results," *The Journal of Parapsychology*, Vol. 33, No. 2, (June 1969) UNCLASSIFIED.

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(S/NF) If the problems of forced-choice remote viewing (i.e., remote viewing of a limited and known set of target alternatives) could be solved, a number of potential applications come to mind. First and foremost, standard redundancy coding techniques could be employed to improve the hit rate further. This is not a new idea. In 1964, Ryzl demonstrated the psychoenergetic transmission of 50 binary bits without a single error,* and in 1985 SRI published a white paper describing a program to determine optimum coding parameters.† In that report, SRI showed that if psychoenergetic functioning were stable over time, it would be possible to trade number of trials for reliability. Using techniques similar to the ones described in SRI's white paper, it is possible to increase the single-bit hit rate for a binary experiment from a nominal 60% to over 99%. With such a low initial hit rate, the efficiency (i.e., one divided by the number of trials required to obtain the desired certainty) is of the order of 0.002 or lower. Such a low efficiency might be problematical in an operational environment.

(S/NF) One solution to this problem is to increase the single-bit hit rate. To do this, however, requires that longstanding problems with the forced-choice psychoenergetic experiments be solved. As part of the USAMRDC's "Enhanced Human Performance Investigation," (Contract DAMD17-85-C-5130), SRI initiated a pilot investigation of forced-choice remote viewing to address the problem of low efficiency. Since a binary search strategy is one of the most likely applications if an increased single-bit hit rate could be realized, the effort to increase the rate was included as part of the FY 1986 Objective E, Task 2, Search. In FY 1987 and FY 1988, this effort was under Objective F, Task 10, and Objective E, Task 4, respectively.

(U) This report summarizes the work performed from FY 1986 through FY 1988.‡

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* (U) Ryzl, M., "A Model of Parapsychological Communication," *Journal of Parapsychology*, Vol. 30, No. 1, pp. 18-30, (March 1966) UNCLASSIFIED.

† (U) Humphrey, B. S., "Psi Communications Experiments (U)," White Paper, SRI International, Menlo Park, California, (November 1985) SECRET/NOFORN.

‡ (U) This report constitutes the deliverable for Objective E, Task 4, FY 1988.

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II METHOD OF APPROACH (U)

A. (U) Objectives

(U) The primary long-term objective of this effort is to improve the single-bit hit rate in binary psychoenergetic experiments significantly beyond baseline or fiducial values. One secondary and one tertiary objective are of interest as well.

- Secondary—To track the various internal mental techniques used, in order to develop hypotheses for later testing.
- Tertiary—To determine if the binary remote viewing techniques can be expanded to choices greater than two (i.e., for between 3 and 6 possible targets).

(U) The specified objective for FY 1988 was set forth under Objective E, Task 4 of the SOW for that year, "Determine the source of 'mental noise' in binary psychoenergetic tasks."

B. (U) Viewer Selection

(S/NF) In discussions, one of SRI's longstanding remote viewers V(002), reported a desire to renew his/her interest in this area and to address the general problem of single-bit hit rate enhancement. Since V002 had demonstrated a willingness to address difficult psychoenergetic research problems in the past, SRI decided that he/she would be an appropriate candidate for this effort.

C. (U) General Approach

(U) A number of problems arise in studying internal mental processes. It is not yet possible to determine the neurological sources of such processes, so we must rely upon subjective techniques in order to begin to understand them. Progress has been made in understanding one area of subjective experience: internal mental imagery. Kosslyn describes successful techniques involving relative internal versus relative external imagery measures to begin to understand this robust mental process.* However, even those techniques cannot yet be applied to remote viewing research, because much of the subjective impressions are reported to precede imagery.

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* (U) Kosslyn, S. M., *Ghosts in the Mind's Machine—Creating and Using Images in the Brain*, W. W. Norton & Company, New York and London (1983) UNCLASSIFIED.

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(U) To meet the specific objective for FY 1988, SRI adopted a wait-and-see approach. This differs from the usual procedure of hypothesis formulation, test, and reformulation. Rather than asking V002 in the beginning to speculate upon a given hypothesis that might describe his/her own internal processes, we requested that he/she describe recognizable changes whenever they were occurring in a current strategy. In addition, V002 was asked to keep notes on current strategy at hand. Noting those change points on the accumulated data might yield information about the efficacy of the changes. It was hoped that changes of strategy might be easier to recognize than the steady state.

(U) One aspect of this approach is to lessen the need for a baseline, because inherent in the procedure is a differential measure (i.e., choose any fiducial point and determine if a meaningful statistical change has occurred since then).

D. (U) General Protocol

(U) The general binary protocol is as follows: During the course of the investigation, V002 remained in New York and all target material and experimental records remained at SRI in Menlo Park. All communication with V002 was by telephone. All single-trial protocols have the following common elements:

- The range of target material was selected by V002 (i.e., which pair for binary or which set of three for one-in-three).
- The internal strategy to be used was noted.
- A target was selected from within the above set by a computer-based random algorithm.
- No verbal communication was allowed after a target had been selected, but the research assistant struck a bell to indicate that the viewing could begin immediately.
- V002 responded verbally, and the result was entered in a data log.
- Immediate feedback was provided.

(U) There were variations on this basic theme depending upon the number of targets in a single trial. In the training phase, the research assistant had control of the target material and scoring. However, potential cuing could exist, because the assistant was knowledgeable about the target material. Since there was no obvious evidence to support a cuing hypothesis, SRI allowed the assistant to know the target material in this phase in order to expedite training, and any results from this portion of the effort were considered as preliminary and used in hypothesis formulation.

(U) All formal results,however, had to be collected under flawless conditions. For any formal tests, an experiment coordinator determined the target material and signaled the assistant

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via a computer link, that a target had been chosen. In this way, all potential inadvertent cuing was eliminated. During the formal tests, the experiment was under the complete control of the experiment coordinator, and the quantitative result was computed as a hit rate, p–value, and effect size regardless of any different internal strategies that may have been used. To determine whether improvement had occurred, significant changes in effect size had to be observed either from a baseline or from a fiducial point (e.g., the formal study in FY 1986).

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III RESULTS AND DISCUSSION (U)

(U) Throughout this section p-values have been computed for various experiments in exploratory phases. Since the number of trials was not declared in advance in these cases, the results for the exploratory work are to be interpreted only as indicators rather than as estimates of the probability that, upon repeating the experiment, the data would be as deviant as the original set (i.e. Type I error). In the formal tests described below, the total number of trials was declared in advance, and, thus the quoted statistics are measures of Type I error.

A. (U) Early Similar Experiments

(S/NF) Viewer 002 has been involved in psychoenergetic experiments since the mid 1960s. The earliest record SRI has for V002 in any forced-choice experiments were those conducted for a different sponsor during FY 1976.* While a number of different experiments were tried during an exploratory period, none produced significant results. Effect sizes are not available from that period. However, data from a formal, automated one-in-four forced-choice experiment are available. V002 produced 167 hits in 500 trials for a hit rate of 33.4% ($p \leq 1.59 \times 10^{-5}$) and an effect size of 0.19.

(S/NF) In later forced-choice experiments involving binary and one-in-ten target systems, V002's results did not produce significant deviations from mean chance expectation.† Because V002 has been involved in this type of research for such an extended period of time, these data possess historical value and interest, and can serve as a long-term baseline. However, because of the general approach described above, it is more appropriate to use newer data as a fiducial point for the differential measures.

B. (U) Exploratory and Formal Efforts—FY 1986

1. (U) Results

(S/NF) During FY 1986, and using a protocol similar to the one described above, V002 contributed 479 binary trials as part of an exploration phase—exploratory because of a

* (U) Puthoff, H. E., and Targ, R., "Advanced Threat Technique Assessment (U)," Interim Engineering Report 1, Project 5309, Stanford Research Institute, Menlo Park, California (September 1976) SECRET.

† (U) Puthoff, H. E., Targ, R., and May, E. C., "Advanced Threat Technique Assessment (U)," Final Report, Project 5309, Stanford Research Institute, Menlo Park, California, (October 1978) SECRET.

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possible sensory leakage path. Of these, 276 were hits for a hit rate of 57.6% ($p \leq 5.01 \times 10^{-4}$) and an effect size of 0.15. In a one-in-three target system, V002 contributed 142 trials with a hit rate of 47.9% ($p \leq 2.30 \times 10^{-4}$) and an effect size of 0.30. In a one-in-four target system, 58 trials were conducted with a hit rate of 29.3% ($p \leq 0.27$) and an effect size of 0.02.

(S/NF) Under formal conditions (described in Section II, D.3.) between 15 September and 13 October, 1986, V002 contributed 50 binary trials. The hit rate was 64%, $p \leq 0.033$, and the effect size was 0.26 (corrected for continuity).

2. (U) Discussion

(S/NF) Keeping in mind that during FY 1986 this was part of a larger search effort and extremely preliminary, the results looked quite encouraging. Even on those few trials (one-in-four target system) where the results failed to meet the 0.05 significance level, the effect size was typical of those seen during the historic Rhine investigations. The remaining exploratory trials produced effect sizes an order of magnitude larger.

(S/NF) This exploratory effect size was confirmed by the formal series. The effect size, 0.26, is somewhat larger than that in the exploratory phase, but not significantly so. Two main conclusions can be drawn from these results:

(1) Because there was chance hitting, there was no evidence for subliminal cuing during the exploratory phase; therefore, its protocol should be kept intact.

(2) The formal result, which cannot be considered as a formal baseline (i.e., a large number of pilot trials before the formal series), can, however, serve as a fiducial point for comparison with later efforts.

C. (U) FY 1987 Exploratory Experiments—Results and Discussion

(U) Encouraged by the FY 1986 effort, and in accordance with the FY 1987 SOW, SRI initiated a second exploratory phase of forced-choice experiments with V002. Rather than conducting a simple forced-choice paradigm as in FY 1986, SRI designed this effort was designed to be more sensitive to the subjective internal states of the viewer.

(U) All trials for the year were binary, and two principal subjective internal states were investigated. The first of these was to determine if the viewer could "tell" (sense) in advance of feedback when he/she was in contact with the remote target. The second internal state was related to the overall subjective feeling of the viewer.

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1. (U) Exploratory Series

(S/NF) The 1668 trials collected in FY 1987 can be divided into two separate segments—the first half reported in the Mid-Year Technical Report,* and the second half reported in the Final Technical Report.† This division is a natural one, in that V002 used two different internal strategies.

(S/NF) During the first half of FY 1987, V002 felt he/she could sense being in psychoenergetic contact with the target material. To test this concept, V002 was required to register, in advance of each trial, whether he/she was in psi contact, definitely not in psi contact, or not sure. The hypothesis under consideration in this protocol was that V002 would be able to sense contact with the remote target and would score significantly positive in the contact condition, score significantly negatively in the no-contact condition, and score at chance in the uncertain condition. Table 1 shows the results of 327 trials collected under this protocol.

Table 1

(U) RESULTS FOR FIRST HALF OF FY 1987

Condition	Trials	Hits	p-value	Effect Size	Fractional Hit Rate
Contact	147	88	8.40×10^{-3}	0.20	0.60
No Contact	59	23	9.55×10^{-1}	-0.22	0.39
Uncertain	121	66	1.52×10^{-1}	0.09	0.55

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(S/NF) Although we must acknowledge that there was a remote possibility of inadvertent cuing, these results suggest that V002 was able to sense contact with the remote target. In a formal test of this hypothesis, it would be stated *a priori* that the trials during the no-contact condition would be automatically inverted in the analysis (i.e., V002's remote viewing would be used to reject one of the targets). It is important to note that the amounts of psychoenergetic functioning required to sense contact are similar to those required to sense no contact with the target. Since the effect sizes a under these two conditions are so similar (i.e., the minus sign for the no-contact condition reflects the fact that V002 scored below mean

* (U) May, E. C., "Enhanced Human Performance Investigation (U)," Mid-Year Technical Report, Project 1291, SRI International, Menlo Park, California (June 1987) SECRET.

† (U) May, E. C., "Enhanced Human Performance Investigation (U)," Final Technical Report, Project 1291, SRI International, Menlo Park, California (December 1987) SECRET.

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(S/NF)
chance expectation—the expected direction if the hypothesis is true), it forms the basis for a strong hypothesis for formal testing.

(S/NF) The directional effect sizes are statistically equivalent to a fiducial condition value of 0.26. Thus, V002 did not exhibit a decline effect, but there was no indication of improvement either. If a direction is specified in advance of an experiment, it is appropriate to use one-tailed tests. From this perspective, the hitting rate was 61%, $p \leq 1.37 \times 10^{-3}$, and the effect size was 0.21—results that are statistically equivalent to the fiducial data, but with the added feature of possible directional control.

(S/NF) The conditions for the second half of FY 1987 were defined at the session level. V002 defined three types of sessions - positive days, negative days, and unknown days - that had to be specified in advance of any trials during a session, reflecting the overall subjective state of being of V002. If these *a priori* statements correlated with performance, they could be used as a filter to reject part of the data. Table 2 shows the results for 1341 trials collected under this protocol.

Table 2

(U) PRELIMINARY RESULTS FOR SECOND HALF OF FY 1987

Session Condition	Trials	Hits	p-value	Effect Size	Fractional Hit Rate
Positive	311	174	1.82×10^{-2}	0.12	0.56
Negative	484	243	4.63×10^{-1}	-0.04	0.50
Uncertain	546	322	1.37×10^{-5}	0.18	0.59

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(S/NF) The positive-day and negative-day data did not exceed mean chance expectation. The uncertain case scored similar to the fiducial data. Yet, the effect size changes are small and not statistically meaningful. To be consistent with the calculations for the data collected in the first half of FY 1987, the one-tailed combination of the data yields a fractional hit rate of 52%, $p \leq 1.00 \times 10^{-1}$, and the effect size is 0.045. Thus, it appears that V002's perception of good and bad days may interfere with good functioning (earlier performance was replicated only during V002's uncertain days). Since there was no evidence for a decline effect for 546 trials during the uncertain days, it is unlikely that the decline effect is responsible for the reduced scoring for the other data.

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2. (U) Formal Test

(S/NF) The experiment coordinator decided to cancel the formal test at the year's end for two reasons:

(1) One main objective of the year-end formal test was to protect against possible cuing. The hit rate for the year was 55%, $p \leq 2.97 \times 10^{-5}$ and the effect size was 0.10. Thus, if inadvertent cuing was present, it resulted in a decrease in effect size—an unlikely circumstance. This is consistent with one of the main conclusions drawn from the results of the FY 1986 test.

(2) V002 requested that we postpone formal tests until FY 1988, because V002 felt he/she was concentrating and beginning to understand something about his/her internal processes. According to V002, a formal test at this time would seriously interrupt the discovery activity at a critical juncture.

In the experiment coordinator's opinion, canceling the formal year-end test did not detract from the FY 1987 results, since they were marginal to begin with and, it was felt that if insights were being gained, they could be tested during FY 1988. As shown below, this decision was justified.

D. (U) FY 1988 Experiments

1. (U) Theoretical Constructs

(U) Viewer 002 has been working for over 20 years in attempting to understand his/her own internal, subjective awareness. What follows is a summary of V002's current understanding with regard to the specific task of determining the source of mental noise in forced-choice experiments.

(U) The fundamental idea is quite straightforward. Forced-choice remote viewing perception* is susceptible to massive overlay by memory (e.g., from earlier trials) and/or expectations (e.g., the target was number one ten times in a row, this time it *must* be number two). To understand the source of these difficulties requires the understanding of the development of thought itself.

(U) As a starting point, V002 followed the ideas of Dr. N. Dixon, a well-known investigator of subliminal perception. Figure 1 summarizes Dixon's concepts of the processing of preconscious information.† It is beyond the scope of this report to describe all the processes

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* (U) These problems arise in traditional remote viewing; however, they are particularly troublesome in the forced-choice arena.

† (U) Dixon, N. E., *Preconscious Processing*, John Wiley, Chichester and New York, p. 25, (1981) UNCLASSIFIED.

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shown in Figure 1, but it can be seen that there are essentially two paths of internal processing, depending on whether the input is supraliminal or subliminal. V002's idea is that the comparator and its associated inputs are the problem for remote viewing perception, and that they must be bypassed if accurate and reliable remote perception is to be realized.

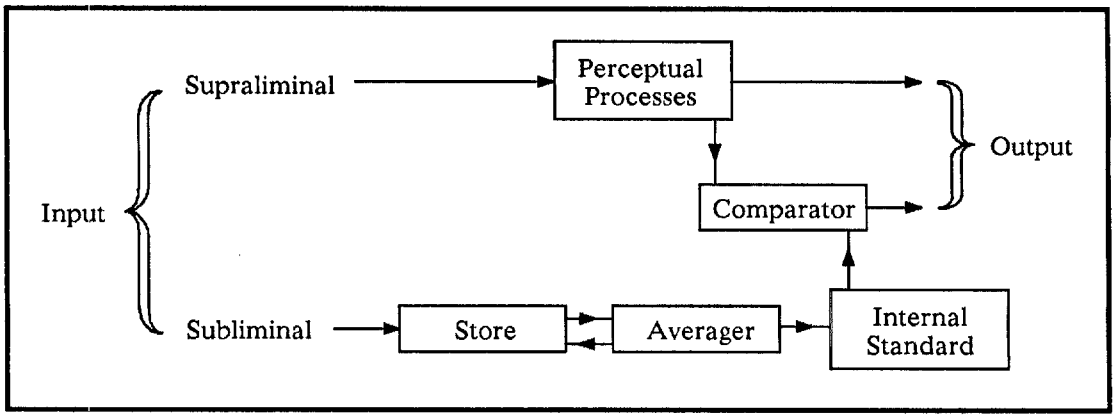

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FIGURE 1 (U) SCHEMATIC REPRESENTATION OF SUPRALIMINAL AND SUBLIMINAL PROCESSING

(U) How to accomplish this bypass is the basis for research for the FY 1988 effort. According to V002, becoming consciously aware of the internal processes shown in Figure 1 is itself a psychoenergetic perception. Since there is no known independent technical mechanism to verify whether V002 can accomplish this or not, SRI adopted a wait-and-see approach. However, V002 has described what he/she *believes* he/she is doing throughout the exploratory phase.

(U) Figure 2 summarizes V002's concept of what must be accomplished for accurate remote perception. In essence, V002 has parsed what he/she earlier termed "analytical overlay" into a number of its constituent parts (i.e., analogous to the Comparator and Internal Standard portions shown in Figure 1). The remote perception enters via an unknown mechanism, but then is normally processed by subliminal perception channels.

(U) The sources of potential noise are obviously interrelated and are probably incomplete. Those shown in Figure 2 represent V002's current subjective impressions.

(S/NF) Superimposed on all of the above is a hierarchy of abstraction in a binary task. The most fundamental level is to recognize (i.e., psychoenergetically) the difference between physical objects. Once that has been accomplished, the next most difficult level is to recognize differences in conditions for a single object (e.g., whether a candle is lit or not). The

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final level of the hierarchy is to perceive the meaning of different conditions of similar objects. For example, the difference between a piece of blank paper with UNCLASSIFIED printed top and bottom and one with SECRET top and bottom lies only in the meaning of the words. If this last stage could be realized, it would have obvious operational significance.

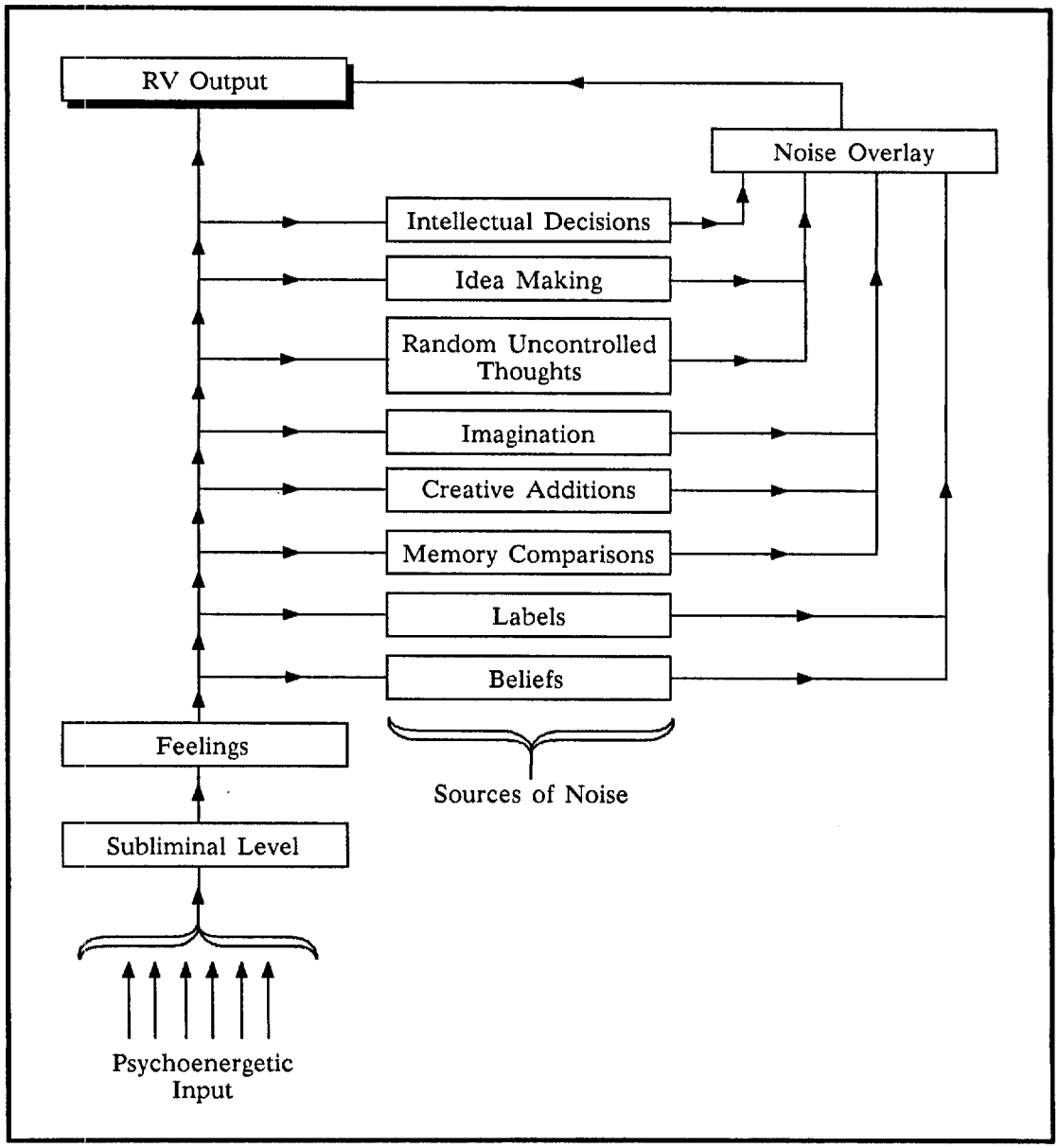

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FIGURE 2 (U) SCHEMATIC REPRESENTATION OF ANALYTICAL OVERLAY

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(U) Since recognizing any differences among internal processes such as these requires, according to V002, psychoenergetic perception, hypotheses about V002's internal strategies are not yet testable. Yet it is possible to determine if there is performance enhancement and, depending upon the data, it is possible to formulate hypotheses if the enhancements correlated with changes in mental strategies. Therefore, as stated above, SRI initiated an open-ended series of mostly binary trials using the exploratory protocol described.

2. (U) Exploratory Phase—Results and Conclusions

(U) A number of possible outcomes can be expected from this approach:

(1) Mean Chance Expectation—No evidence of psychoenergetic functioning for any internal strategy.

(2) Significant Functioning with No Learning—V002 maintains a consistent level of performance regardless of internal strategy.

(3) Significant Functioning with Linear Learning—Evidence favoring practice is all that is needed, and the internal strategies are either all equally effective or not effective at all.

(4) Significant Functioning that Encompasses a Traditional Learning Curve—Evidence supporting the concept that V002 was able to recognize some internal signature that allows enhanced performance.

Should a traditional learning curve be observed, it would be extremely challenging to develop an appropriate protocol to verify that what has been recognized is related to V002's perception of internal processes.

(S/NF) During FY 1988, V002 contributed 477 binary trials (ended due to time constraints) with 286 hits ($p \leq 7.90 \times 10^{-6}$) for an overall effect size of 0.20. Figure 3 shows the trial-by-trial history of these data. Trial number is plotted against accumulated excess hits (Δ). Also shown are the locations where V002 changed internal strategy (unlabeled arrows). Each change was declared before any data were collected for that strategy. The numeric labels indicate V002's names for major shifts in strategy—also declared in advance of data collection. According to V002, the unlabeled arrows represent very minor changes in internal perception. This discrimination was also declared in advance of any trials. All reported changes are noted in Figure 3.

(S/NF) The overall result (285 hits in 477 trials)clearly indicates psychoenergetic functioning ($p \leq 7.90 \times 10^{-6}$); thus, mean chance expectation has been exceeded. The linear correlation coefficient for trial number versus accumulated excess hits was 0.868 with 475

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degrees of freedom. Clearly, this is different from the expected value of zero, and thus on the average, there was not a constant hit rate.

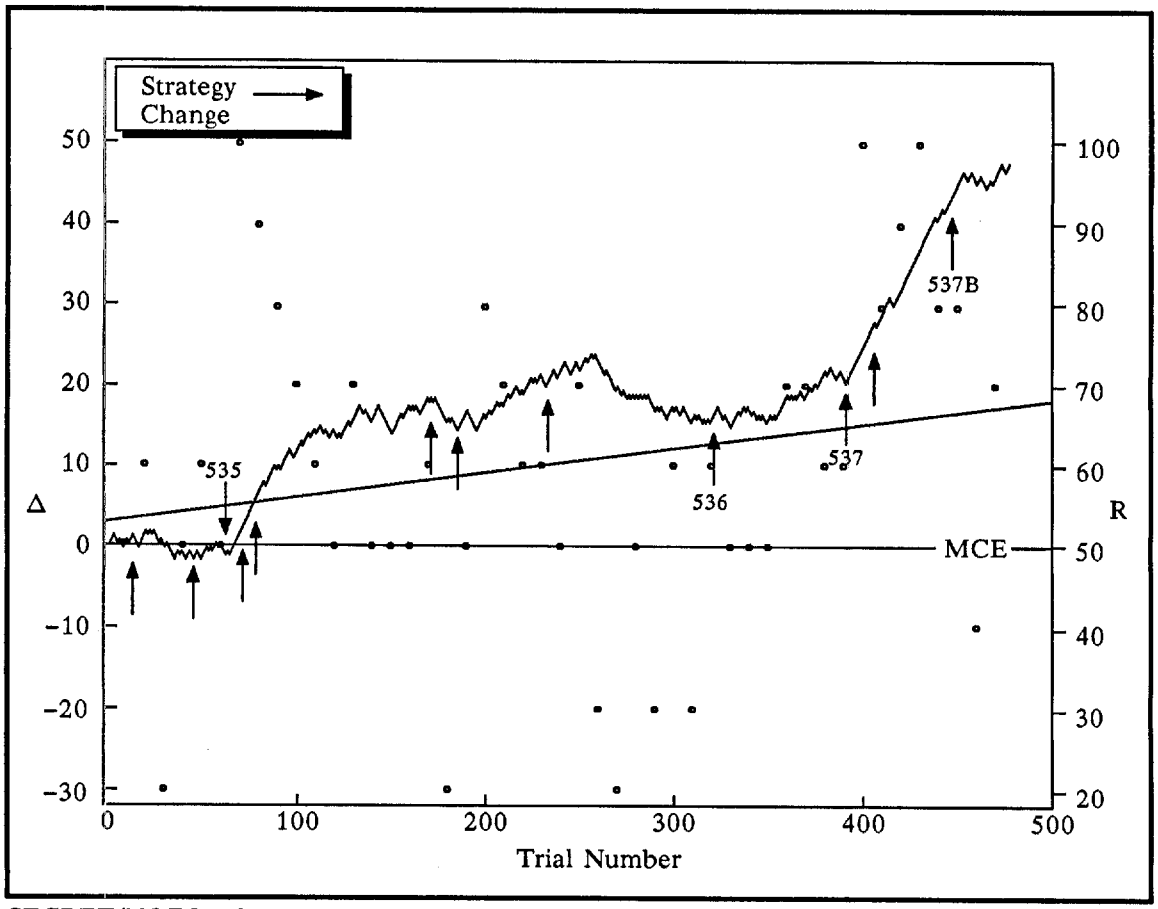

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FIGURE 3 (U) EXCESS HITTING DURING EXPLORATORY TRIALS—1988

(S/NF) Shown also in Figure 3 is the "instantaneous" hit rate, *R*, calculated over 10 trial segments (open circles). The first point, at 10 trials, represents the average hit rate from trial 5 to trial 15; the second point at 20 trials represents the average hit rate from trial 15 to trial 25 and so on. The line labeled MCE (mean chance expectation) corresponds to a 50% hit rate. The unlabeled line ($R = 0.529 + .003\ n$) is the regression line for the instantaneous hit rate. While the curve demonstrates a clear trend toward performance enhancement, the linear correlation coefficient is not significantly ($r = 0.203$, $p \leq 0.09$) greater than chance ($r = 0.0$).

(S/NF) Figure 3 shows periods of significant growth followed by periods of consolidation. Major strategy 535 fits this model, but major strategy 536 does not. Yet, major strategy 537 produced another period of growth. Strategy 537B is also labeled because it was the

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one that was used in the formal test (see Section 3 below), and V002 claimed that it represented a transition from three-dimensional to two-dimensional targets. In V002's theoretical construct, this also represents a change from perceiving object conditions to perceiving object meaning.

(S/NF) As can been seen from both the hit rate and accumulated excess hits, there was one period (approximately 14.3% of the total number of trials—trials 254 through 321) that corresponds to a decline in performance. This period is the only time during the exploratory sessions in which a large number of trials (68) were attempted during a single session (average hit rate of 40%). The second longest continuous segment was from trial 335 to 358 (24 trials for an average hit rate of 54%).

(S/NF) In answer to questions about what was occurring with each of these strategy shifts, all V002 could say is that they represent new psychoenergetic contact with some of the noise sources shown in Figure 2 . It is frustrating from SRI's perspective as well as from that of V002 that these strategies remain so subjective.

(S/NF) In addition to the 477 binary trials, 18 were collected, but not included in the record. For these trials, the target was whether or not a second person was in the SRI analyst's office. The hit rate for these 18 trials was 78%, $p \leq 1.69 \times 10^{-2}$, and the effect size was 0.50. These data are not to be considered part of the experimental record, however, since it became apparent that the background noise level was obviously different when a second person was in the office. Thus, it is assumed that the strong scoring could easily be attributed to cuing.

(U) During FY 1988, two smaller series of forced-choice experiments (n = 3 and n = 6) were conducted. The protocol for these was the same as for the binary case except that the target pool was appropriately larger.

(S/NF) V002 contributed 135 trinary (i.e., one-in-three) trials. The hit rate was 48% (expected hitting rate is 33%), $p \leq 1.83 \times 10^{-4}$, and the effect size was 0.31. This effect size is slightly larger than the fiducial binary case and represents an increase from 0.25 for the first half of the data to 0.34 for the second half. With so few trials, it is difficult to interpret this increase. These trials were primarily used to form a fiducial point for later trinary experiments.

(S/NF) V002 contributed 49 trials in a one-in-six experiment. The hit rate was 18%, $p \leq 4.49 \times 10^{-1}$, and the effect size was 0.018. These trials were exploratory for V002, to determine subjectively if some of the binary routines were applicable to a larger pool of target choices. This small effect size and hit rate (expected hit rate is 17%) indicate that more work is needed to understand the forced-choice remote viewing of one-in-six target possibilities.

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3. (U) Formal Test

(S/NF) As in earlier years, there is no indication (except where noted) that these results can be accounted for entirely on the basis on inadvertent cuing. However, SRI conducted a formal test of 50 trials as a concluding effort for FY 1988. V002 used strategy 537B throughout the formal series.

(U) The protocol for the formal experiment was designed to eliminate the possibility of any inadvertent cuing. In general, it was similar to the binary procedures that had been in use since the beginning of the binary search program in FY 1986 as described above.

a. (U) Number of Trials

(U) The total number of trials for the formal experiment was specified in advance as 50.

b. (U) Target Material

(U) For each trial, pairs of targets were selected from the material shown in Table 3. Some of the time V002 suggested a pair, but most of the time the choice was up to the experiment coordinator. These pairs were not chosen randomly. Rather they were chosen in accordance with a subjective opinion as to the difference between the pair. Occasionally, V002 would request a different pair before the trial was initiated.

c. (U) Computer Link

(U) To ensure that there was no inadvertent cuing, a computer link was established between the experiment coordinator (EC) and the research assistant (RA). After a target had been generated (see below) the only communication allowed over the computer link from the EC was the single word "Ready." To further protect against inadvertent cuing, the word "Ready" was typed automatically by a special program rather than manually.

d. (U) Sequence of Events for a Single Trial

(1) Viewer 002 selected a pair of possible targets from the list shown above, and informed the RA.

(2) The RA informed the EC by computer link of the choices.

(3) The EC used established computerized random procedures to select one of the pair as the actual target and placed it in a predetermined place. The other target of the selected pair was placed in a desk drawer. One

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minute after Step 2, the EC informed the RA that a target was ready by typing the single word "Ready."

(4) The RA informed the viewer that a target was ready by striking a bell.

(5) The viewer responded, and the RA informed the EC of the choice by the computer link.

(6) The EC recorded the data and informed the RA of the target.

(7) The RA provided feedback to the viewer.

(8) Before a new trial could begin, the EC had to replace the targets in the target pack and signal the RA by typing "Next."

Table 3

(U) TARGET LIST FOR THE FORMAL EXPERIMENT

Number	Description
1	Graph paper: red, circular.
2	Contour map: black, ovals.
3	Contour map: black, concentric circles.
4	Graph paper: black, rectangular.
5	Circular graph paper: Black, concentric circles.
6	Reactance frequency graph paper: orange, rectangular/triangular.
7	Reactance frequency graph paper: green, rectangular/triangular.
8	Circular percentage graph paper: green, 3 circles.
9	Geomagnetic meridian plot paper: black, 3 half circles.
10	Perspective graph paper: blue, rectangular, diagonal lines.
11	Triangular coordinate paper: orange, triangles.
12	Triangular coordinate paper: green, triangles.
13	Square graph paper: green, 10 x 10 to the inch.
14	Square graph paper: orange, 4 x 4 to the inch.
15	Square graph paper: 5 x 5 to the centimeter.
16	Circular, polar coordinate graph paper: orange, 10 parts to the inch.
17	Circular, polar coordinate graph paper: green, 10 parts to the inch.
18	Chart geomagnetic latitude paper: black, 11x18 inches.
19	**CONFIDENTIAL**: flag/alert sheet with red-striped border.
20	**CONFIDENTIAL** document cover: SRI
21	SRI document cover: brown beige.
22	**CONFIDENTIAL** manila envelope.
23	**SECRET** mat paper.
24	**UNCLASSIFIED** mat paper.
25	**CONFIDENTIAL** mat paper.
26	**NUCLEAR DEVELOPMENT**: large sign.
27	**SECRET PLANS**: large sign.
28	**CLASSIFIED INFORMATION**: large sign.
29	**CODE XLTZ**: large sign.

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e. (U) Record

(U) The date, target pair, intended target, and the response were tabulated for later analysis (see Table 4).

f. (U) Analysis

(U) A single p-value and effect size were calculated from the data shown in Table 4.

g. (U) Results

(S/NF) Table 4 shows the targets that were used and the results for the 50-trial formal series. There were 38 hits, corresponding to a hit rate of 76% ($p \leq 1.53 \times 10^{-4}$) and an effect size of 0.51. The hit rate is consistent with that observed using strategies 537 and 537B, and the effect size is nearly double that obtained during the fiducial run at the end of FY 1986. If it is assumed that the hit rate of 64% is the actual hit rate, then there has been a significant increase ($p \leq 0.038$) since FY 1986. The one-sided confidence interval (95%) is 66%, which is greater than the fiducial value of 64%.

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Table 4
(U) RECORD SHEET FOR THE FORMAL EXPERIMENT

Trial	Date	Target Possibilities		Target Choice	Response	Hit
		One	Two			
1	9/20	8	22	8	22	
2	9/20	8	22	22	22	X
3	9/21	12	18	12	18	
4	9/21	12	19	19	12	
5	9/21	12	19	19	19	X
6	9/21	18	22	22	22	X
7	9/22	22	23	22	22	X
8	9/26	18	19	19	19	X
9	9/27	5	24	24	24	X
10	9/28	26	29	26	26	X
11	9/29	27	28	27	27	X
12	9/29	12	19	19	12	
13	9/29	21	27	27	27	X
14	9/30	18	19	18	18	X
15	10/3	26	29	29	29	X
16	10/3	2	19	2	2	X
17	10/3	26	29	26	29	
18	10/3	20	23	20	20	X
19	10/3	5	22	5	5	X
20	10/4	1	20	20	20	X
21	10/4	11	27	27	27	X
22	10/4	19	26	26	26	X
23	10/4	12	16	12	16	
24	10/4	19	24	24	24	X
25	10/5	19	24	19	24	

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Table 4, Continued

(U) RECORD SHEET FOR THE FORMAL EXPERIMENT

Trial	Date	Target Possibilities		Target Choice	Response	Hit
		One	Two			
26	10/5	26	29	26	29	
27	10/5	19	21	21	21	X
28	10/5	2	27	27	27	X
29	10/5	18	28	18	18	X
30	10/6	2	19	19	19	X
31	10/6	11	12	12	12	X
32	10/6	18	23	23	23	X
33	10/6	18	22	18	18	X
34	10/6	5	26	5	5	X
35	10/6	6	7	7	7	X
36	10/6	19	23	19	23	
37	10/6	18	20	18	18	X
38	10/6	22	29	22	22	X
39	10/6	5	10	5	10	
40	10/6	2	6	2	2	X
41	10/7	2	19	2	2	X
42	10/7	5	29	5	5	X
43	10/7	6	18	6	6	X
44	10/7	12	26	12	12	X
45	10/7	22	24	24	22	
46	10/7	2	20	20	20	X
47	10/7	18	27	27	27	X
48	10/7	1	28	28	28	X
49	10/7	3	22	3	3	X
50	10/7	5	26	26	5	

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IV CONCLUSIONS AND RECOMMENDATIONS (U)

(S/NF) The single most interesting outcome during the three-year experiment is that there was a significant enhancement of hit rate in the formal series in FY 1988 over the results from the formal series during FY 1986.

(S/NF) In examining the performance during the exploratory phase in FY 1988, we observed strong enhancement (not significant) of hit rate (see Figure 3). At this point, a number of possible explanations could account for the improvement:

- V002 has correctly identified his/her source of internal noise,
- Although SRI believes it unlikely, V002 may have learned to use weak sensorial cues during the exploratory phase, or
- Due to the complexity of the protocol during the formal series, there is still an unknown sensory leakage path.

While it is impossible to rule out unknown sensory leakage paths, all of the known ones were addressed in the formal protocol. We include this remote possibility for completeness. Because of the protocol complexity, the remote viewing processes are indeterminate at present, but the end-point statistic is valid.*

(S/NF) It is important that this study be continued in order to isolate which of these explanations is more able to explain the results, and to identify a technique to quantify the internal experiences of V002, should that prove to be the proper explanation. Should such a technique be found, specific hypotheses could formulated and tested, and a training procedure and applications could be developed based upon that knowledge.

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* (U) During the Scientific Oversight Committee meeting of 4 November 1988, a number of comments were made concerning the adequacy of the protocols with regard to process. However, there was general agreement about the endpoint statistic. See "Enhanced Human Performance Investigations (U)," Final Technical Report, SRI Project 1291, SRI International, Menlo Park, CA (December 1988) SECRET.

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